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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,583	12/17/2003	Lothar Hay	003810-030	5714

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EXAMINER

PANG, ROGER L

ART UNIT PAPER NUMBER

3681

DATE MAILED: 11/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/736,583

Applicant(s)

HAY, LOTHAR

Examiner

Roger L. Pang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23, 29 and 35 is/are allowed.
- 6) ☒ Claim(s) 21-22, 24-28, 30-34, 36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

The following action is in response to the amendment filed for application 10/736,583 on October 20, 2005.

Election/Restrictions

Applicant's election without traverse of Transmission I in the reply filed on July 8, 2005 is acknowledged.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21-22, 24 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomio '055 in view of Hasebe '968. With regard to claims 21 and 31, Tomio teaches a differential cage for a differential gear 1, comprising: a cage member having a cavity machined on an inside surface (Fig. 1) and having an installation opening (left side) for compensating gear and driving gears (Fig. 1), and an axle drive gear 6 which are integrally formed in a one-piece forging together with the cage member (Abstract). Tomio lacks the teaching of an integrally formed parking lock gear with said cage and driving gear. Hasebe teaches a differential 20 with a parking lock gear 66 fixed to a differential cage 51. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tomio to employ a one-piece axle drive gear/parking lock gear/ cage member forging in view of Hasebe in order to provide a locking means when in a parked condition, and also since it has been held that forming in one

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piece an article which has formerly been formed in two pieces and put together (i.e. the parking lock gear and cage) involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893). With regard to claims 22 and 32, Tomio teaches the cage wherein said cage member has two bores to support respective axle driving shafts 8,9 (Fig. 1). With regard to claim 24, Tomio teaches the cage, including aligned bores having a common axis to accommodate a bearing pin 7 for the compensating gears 10, a spacing of the common axis from the axle drive gear being chosen dependent on a desired size of the installation opening.

Claims 25, 28, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomio '055 in view of Hasebe '968, as applied to claims 22 and 32 above, respectively, and in further view of Ichiki '946. With regard to claims 25, 28, and 33, Tomio teaches a cage wherein one of the two bores has a diameter which is large enough for a machining tool to be entered into said cavity (left side) and a separate bearing sleeve 4, but lacks the teaching of said sleeve being received in said bore with said great enough diameter. Ichiki teaches the cage wherein one of said two bores has a diameter which is great enough for a machining tool to be entered into said cavity, and a separate bearing sleeve 13 for the associated axle driving shaft being received in said bore with said great enough diameter (Fig. 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tomio to employ a bearing sleeve that enters the bore with great enough diameter, in order to reduce radial movement of said sleeve and facilitate easier assembly.

Claims 26-27, 30, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomio in view of Hasebe as applied to claims 21 and 31, respectively, above, and further in view of Mucha. With regard to claims 26-27, 30, and 36, Tomio teaches the cage, but lacks the

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teaching of the teeth of said axle drive gear and parking lock gear being dual frequency induction hardened. Mucha teaches a gear 8 that is hardened via a dual frequency induction hardening process (Col. 8). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tomio to employ dual frequency induction hardening for the axle drive gear and parking lock gear in further view of Mucha, in order to progressively harden the gears for longer durability. With regard to claim 34, Tomio teaches the cage, but lacks the teaching of the teeth of said axle drive gear and parking lock gear being dual frequency induction hardened. Mucha teaches a gear 8 that is hardened via a dual frequency induction hardening process (Col. 8), the respective teeth being subjected to a high frequency $>100\text{kHz}$ and a medium frequency $<20\text{kHz}$ simultaneously in a dual frequency induction process, a frequency mix of the high frequency and the medium frequency being adjusted so that layers near a surface are heated substantially equally from a root of the tooth to a tip of the tooth (Fig. 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tomio to employ dual frequency induction hardening for the axle drive gear and parking lock gear in further view of Mucha, in order to progressively harden the gears for longer durability.

Allowable Subject Matter

Claims 23, 29, and 35 are allowed.

Response to Arguments

Applicant's arguments with respect to claims 21 and 31 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

FACSIMILE TRANSMISSION

Submission of your response by facsimile transmission is encouraged. The central facsimile number is (571) 273-8300. Recognizing the fact that reducing cycle time in the processing and examination of patent applications will effectively increase a patent's term, it is to your benefit to submit responses by facsimile transmission whenever permissible. Such submission will place the response directly in our examining group's hands and will eliminate Post Office processing and delivery time as well as the PTO's mail room processing and delivery time. For a complete list of correspondence not permitted by facsimile transmission, see MPEP 502.01. In general, most responses and/or amendments not requiring a fee, as well as those requiring a fee but

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charging such fee to a deposit account, can be submitted by facsimile transmission. Responses requiring a fee which applicant is paying by check should not be submitting by facsimile transmission separately from the check.

Responses submitted by facsimile transmission should include a Certificate of Transmission (MPEP 512). The following is an example of the format the certification might take:

I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office (Fax No. (571) 273-8300) on _____ (Date)

Typed or printed name of person signing this certificate:

(Signature)


If your response is submitted by facsimile transmission, you are hereby reminded that the original should be retained as evidence of authenticity (37 CFR 1.4 and MPEP 502.02). Please do not separately mail the original or another copy unless required by the Patent and Trademark Office. Submission of the original response or a follow-up copy of the response after your response has been transmitted by facsimile will only cause further unnecessary delays in the processing of your application; duplicate responses where fees are charged to a deposit account may result in those fees being charged twice.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roger L. Pang whose telephone number is 571-272-7096. The examiner can normally be reached on 5:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor can be reached on 571-272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Roger L Pang
Primary Examiner
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November 15, 2005